

On some Combinations of Platinum. By Edmund Davy, Esq. Professor of Chemistry, and Secretary to the Cork Institution. Communicated by F. Babington, M.D. F.R.S. Read February 17, 1820. [*Phil. Trans.* 1820, p. 108.]

The principal object of this paper is to describe a peculiar compound of platinum, obtained from the sulphate by the agency of alcohol. On boiling sulphate of platinum with alcohol, a substance is precipitated, which, when dried, is black, insoluble in water, and unalterable by exposure to air. It is reduced with a slight explosion when heated. It acquires fulminating properties when steeped in ammonia. It is insoluble in nitric, sulphuric, and phosphoric acids, and slowly soluble in muriatic acid. By alcohol it is immediately decomposed, as shown by slightly moistening it with that liquid; and such heat is produced as to ignite the separated platina. During these changes acetic acid is formed.

Mr. Davy gives a detailed analysis of this powder, whence it appears to consist almost solely of platinum, with a little oxygen, and the elements of nitrous acid; a small portion of carbon was also obtained, which, however, the author regards as accidental; the presence of nitrous acid is referred to the manner in which the sulphate of platinum is formed, namely, by the agency of nitrous acid on sulphuret of platinum.

In the fifth and sixth sections of this paper, Mr. Davy describes the action of sulphate of platinum upon solutions of jelly, in which it forms a precipitate composed, when dried at 212° , of

56.11 oxide of platinum,

20.02 sulphuric acid,

23.87 gelatine and water.

The author considers the sulphate of platinum as the most delicate known test for jelly.

In the seventh section of his paper, Mr. Davy describes a grey oxide of platinum, obtained by the action of nitrous acid on fulminating platinum, and affording on analysis,

100 platinum + 11.9 oxygen.

Assuming, with Vauquelin and Berzelius, that the black oxide of platinum contains 15 per cent. of oxygen, the author observes that the grey oxide which he has described may be considered as the protoxide, and will consist of one proportion of platinum and one of oxygen, or 126 platinum + 15 oxygen, and the black oxide will consist of 126 platinum and 22.5 oxygen, or of one proportion of metal and $1\frac{1}{2}$ of oxygen.

On the Methods of Cutting Rock Crystal for Micrometers. By William Hyde Wollaston, M.D. F.R.S. Read February 24, 1820. [*Phil. Trans.* 1820, p. 126.]

For the purpose of examining the phenomenon of double refraction, it is easy to combine a wedge of rock crystal with one of crown